STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0021440
Owner:	City of Monett
Address:	217 5th Street, Monett, MO 65708
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Monett Wastewater Treatment Facility
Facility Address:	50 North Eisenhower, Monett, MO 65708
Legal Description:	SE ¼, SE ¼, Sec. 36, T26N, R28W, Barry County
Receiving Stream:	Clear Creek (C)
First Classified Stream and ID:	Clear Creek (C)(03239)
USGS Basin & Sub-watershed No.:	(11070207-030001)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfall #001 - POTW - SIC #4952
Rotating biological contactor/trickling filter facility with sand filter tertiary treatment & chlorination/dechlorination. It utilized anaerobic digesters with sludge being land applied.
Outfall #002 – POTW – SIC #4952
Stormwater basin.

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

May 17, 2002
Effective Date

Stephen M. Mahfood, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

May 16, 2007
Expiration Date

Director of Staff, Clean Water Commission

MO 780-0041 (10-93)

PERMIT NUMBER MO-0021440

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001 Flow	MGD	*		*	once/day	24 hr. total
Biochemical Oxygen Demand$_5$**	mg/L		15	10	once/week	24 hr. composite
Total Suspended Solids**	mg/L		20	15	once/week	24 hr. composite
Fecal Coliform	#/100mL	1000		400	once/week	grab
pH – Units	SU	***		***	once/week	grab
Temperature	°C	*		*	once/week	grab
Ammonia as N (total)(Note 1)	mg/L	****		****	once/week	grab
Oil & Grease	mg/L	15		10	once/month	grab
Chlorine, Total Residual (Note 2)	mg/L	0.01		0.01	once/week	grab
Cadmium, Total Recoverable	mg/L	0.018		0.018	once/month	24 hr. composite
Chromium, Total Recoverable*****	mg/L	0.190		0.190	once/month	24 hr. composite
Copper, Total Recoverable	mg/L	0.043		0.043	once/month	24 hr. composite
Lead, Total Recoverable	mg/L	0.020		0.020	once/month	24 hr. composite
Nickel, Total Recoverable	mg/L	0.60		0.60	once/month	24 hr. composite
Zinc, Total Recoverable	mg/L	1.505		1.505	once/month	24 hr. composite
Cyanide, Amenable to Chlorination	mg/L	0.005		0.005	once/quarter******	grab
Hardness	mg/L	*		*	once/week	grab
Dissolved Oxygen	mg/L	*		*	once/daily	grab
Total Phosphorus	mg/L	*		*	once/week	grab
Orthophosphate	mg/L	*		*	once/week	grab
Kjeldahl Nitrogen	mg/L	*		*	once/week	grab
$NO_2 + NO_3$	mg/L	*		*	once/week	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE July 28, 2002.

Whole Effluent Toxicity (WET) Test	% Survival	See Special Conditions	once/year in January	24 hr. composite

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE July 28, 2002. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I, II & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #002						
Flow	MGD	*		*	once/discharge	24 hr. estimate
Biochemical Oxygen Demand$_5$**	mg/L	*		*	once/discharge	grab
Total Suspended Solids**	mg/L	*		*	once/discharge	grab
pH – Units	SU	*		*	once/discharge	grab
Temperature	°C	*		*	once/discharge	grab
Ammonia -Nitrogen	mg/L	*		*	once/discharge	grab
Total Phosphorus	mg/L	*		*	once/discharge	grab
Orthophosphate	mg/L	*		*	once/discharge	grab
Kjeldahl Nitrogen	mg/L	*		*	once/discharge	grab
NO_2 + NO_3	mg/L	*		*	once/discharge	grab
Site US1 - Upstream of Outfalls #001 & #002						
Flow		*		*	once/month	instantaneous
Biochemical Oxygen Demand$_5$	mg/L	*		*	once/month	grab
Dissolved Oxygen	mg/L	*		*	once/month	grab
Total Suspended Solids	mg/L	*		*	once/month	grab
pH – Units		*		*	once/month	grab
Temperature	mg/L	*		*	once/month	grab
Ammonia - Nitrogen	mg/L	*		*	once/month	grab
Total Phosphorus	mg/L	*		*	once/month	grab
Orthophosphate	mg/L	*		*	once/month	grab
Kjeldahl Nitrogen	mg/L	*		*	once/month	grab
NO_2 + NO_3	mg/L	*		*	once/month	grab
Hardness	mg/L	*		*	once/month	grab
Cadmium, Total Recoverable	µg/L	*		*	once/month	grab
Chromium, Total Recoverable	µg/L	*		*	once/month	grab
Copper, Total Recoverable	µg/L	*		*	once/month	grab
Lead, Total Recoverable	µg/L	*		*	once/month	grab
Nickel, Total Recoverable	µg/L	*		*	once/month	grab
Zinc, Total Recoverable	mg/L	*		*	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE July 28, 2002. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Site DS1 - Downstream of Outfall #001 – edge of mixing zone (0.25 miles)						
Flow	MGD	*		*	once/month	instantaneous
Biochemical Oxygen Demand$_5$	mg/L	*		*	once/month	grab
Dissolved Oxygen	mg/L	*		*	once/month	grab
Total Suspended Solids	mg/L	*		*	once/month	grab
pH – Units		*		*	once/month	grab
Temperature	mg/L	*		*	once/month	grab
Ammonia - Nitrogen	mg/L	*		*	once/month	grab
Total Phosphorus	mg/L	*		*	once/month	grab
Orthophosphate	mg/L	*		*	once/month	grab
Kjeldahl Nitrogen	mg/L	*		*	once/month	grab
NO_2 + NO_3	mg/L	*		*	once/month	grab
Hardness	mg/L	*		*	once/month	grab
Cadmium, Total Recoverable	µg/L	*		*	once/month	grab
Chromium, Total Recoverable	µg/L	*		*	once/month	grab
Copper, Total Recoverable	µg/L	*		*	once/month	grab
Lead, Total Recoverable	µg/L	*		*	once/month	grab
Nickel, Total Recoverable	µg/L	*		*	once/month	grab
Zinc, Total Recoverable	mg/L	*		*	once/month	grab
Influent Flow	MGD	*		*	once/day	24 hr. total
Biochemical Oxygen Demand$_5$	mg/L	*		*	once/month	grab
Total Suspended Solids	mg/L	*		*	once/month	grab
pH – Units	SU	*		*	once/month	grab
Cadmium, Total Recoverable	mg/L	*		*	once/month	grab
Chromium, Total Recoverable*****	mg/L	*		*	once/month	grab
Copper, Total Recoverable	mg/L	*		*	once/month	grab
Lead, Total Recoverable	mg/L	*		*	once/month	grab
Nickel, Total Recoverable	mg/L	*		*	once/month	grab
Zinc, Total Recoverable	mg/L	*		*	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE July 28, 2002.

Cyanide, Amenable to Chlorination	mg/L	*		*	once/quarter ******	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE October 28, 2002. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.
** This facility is required to meet a removal efficiency of 85% or more.
*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.
**** Ammonia limits are as follows:

	Daily Maximum	Monthly Average
May 1 – September 30	2.8	2.8
December 1 – February 28	3.8	3.8
Other Periods	4.0	4.0

***** Chromium includes both hexavalent and trivalent forms.
****** Sample once per quarter in the months of January, April, July & October.

Note 1 – When samples are taken for ammonia analysis, pH and temperature measurements shall be taken at the same time.

Note 2 - This permit contains a Total Residual Chlorine (TRC) limit.

a. If the TRC limit in this permit is 0.01 mg/L or 0.2 mg/L, you must use an analytical method that has a quantification limit of no greater than 0.05 mg/L TRC. For reporting purposes on the discharge monitoring report (DMR), all analytical values below 0.05 mg/L shall be reported as "<quantlim." All analytical values at or above the quantification limit of 0.05 mg/L shall be reported as the measured value. The permittee shall report the quantification limit in the remarks section of the DMR.

   The average monthly effluent values for TRC will be determined by assuming that analytical results below the quantification limit are equivalent to 0 mg/L when calculating the monthly average.

   The daily effluent value will be considered equal to 0 mg/L if it is below the quantification limit.

b. If the TRC limit in this permit is 1.0 mg/L; you must use an analytical method with a quantification limit between 0.2 and 0.5 mg/L. All analytical values below the quantification limit shall be reported as "<quantlim." All analytical values at or above the quantification limit shall be reported as the measured value.

   The average monthly effluent values for TRC will be determined by assuming that analytical results below the quantification limit are equivalent to 0 mg/L when calculating the monthly average.

   The daily effluent value will be considered equal to 0 mg/L if it is below the quantification limit.

c. Disinfection is required year-round unless the permit specifically states that "Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31." If your permit does not require disinfection during the non-recreational months, do not chlorinate in those months.

d. Do not chemically dechlorinate if it is not required in your permit.

e. If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as "0 mg/L" TRC.

Note 3 – Downstream monitoring of the receiving stream shall be performed at the county road crossing on the Section 26 & 27 section line, T26N, R28W, Lawrence County.

C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.

3. Permittee will cease discharge by connection to areawide wastewater treatment system within 90 days of notice of its availability.

4. Changes in Discharges of Toxic Substances

   The permittee shall notify the Director as soon as it knows or has reason to believe:
   (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
      (1) One hundred micrograms per liter (100 µg/L);
      (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
      (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
      (4) The level established in Part A of the permit by the Director.
   (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

5. Report as no-discharge when a discharge does not occur during the report period.

6. Permittee shall submit with the last regular monitoring report of each year, an annual report briefly describing all sewer extensions constructed during the previous calendar year. This report shall list and describe all extensions, including the construction permit number(s), list organic and hydraulic load to be distributed by each extension, and calculate organic and hydraulic capacity remaining at the wastewater treatment facility as a result of each extension.

C. SPECIAL CONDITIONS (continued)

7. General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
   (a) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
   (b) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
   (c) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
   (d) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
   (e) There shall be no significant human health hazard from incidental contact with the water;
   (f) There shall be no acute toxicity to livestock or wildlife watering;
   (g) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
   (h) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

8. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
   (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
   (b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids that are removed from the domestic wastewater treatment lagoon during lagoon clean-out and maintenance activities. Permit Standard Conditions, Part III shall apply to the land application of biosolids. Permittee shall notify the department at least 180 days prior to the planned removal of biosolids from the lagoon. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

9. Whole Effluent Toxicity (WET) tests shall be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
#001	100%	Annually	24 hr. composite	January

a. Test Schedule and Follow-Up Requirements

(1) Perform a single-dilution test in the months and at the frequency specified above.

If the effluent passes the test, do not repeat the test until the next test period. Submit results with the annual report.
If the effluent fails the test, a multiple dilution test shall be performed within 30 days, and biweekly thereafter, until one of the following conditions are met:

(a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
(b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

C. SPECIAL CONDITIONS (continued)

9. Whole Effluent Toxicity (WET) (continued)

a. Test Schedule and Follow-Up Requirements (continued)

(2) The permittee shall submit a summary of all test results for the test series to the WPCP, Planning Section, P.O. Box 176, Jefferson City, MO 65102 within 14 days of the third failed test. DNR will contact the permittee with initial guidance on conducting a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE). The permittee shall submit a plan for conducting a TIE or TRE to the Planning Section of the WPCP within 60 days of the date of DNR's letter. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

(3) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.

(4) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.

(5) In addition to the WET test summary report required in part (2), all failing test results shall be reported to DNR within 14 days of the availability of the results.

(6) All WET test results for the reporting period shall be summarized and submitted to DNR by the end of the following October. When WET test sampling is required to run over one DMR period, each DMR report shall contain information generated during the reporting period.

b. PASS/FAIL procedure and effluent limitations

(1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.

(2) To pass a multiple-dilution test:

(a) the computed percent effluent at the edge of the zone of initial dilution, Acceptable Effluent Concentration (AEC), must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms; or,
(b) all dilutions equal to or greater than the AEC must be nontoxic. Failure of one multiple-dilution test is an effluent limit violation.

c. Test Conditions

(1) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing should come from cultures reared for the purpose of conducting toxicity tests and should be cultured in a manner consistent with the most current USEPA guidelines. All test animals should be cultured as described in EPA-600/4-90/027.

C. SPECIAL CONDITIONS (continued)

9. Whole Effluent Toxicity (WET) (continued)

c. Test Conditions (continued)

(2) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.

(3) When dilutions are required, upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.

(4) Tests should be initiated immediately after the sample is collected, but tests must be initiated no later than 36 hours after sample collection.

(5) Single-dilution tests will be run with:

(a) Effluent at the AEC concentration;
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.

(6) Multiple-dilution tests will be run with:

(a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.

(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

10. Permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 40 CFR Part 403. The approved pretreatment program is hereby incorporated by reference.
11. Permittee shall submit to the Department on or before March 31st of each year a report briefly describing its pretreatment activities during the previous calendar year. At a minimum, the report shall include the following:
(a) An updated list of the Permittee's Industrial Users, including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Permittee shall provide a brief explanation of each deletion. This list shall identify which Industrial Users are subject to categorical pretreatment Standards and specify which Standards are applicable to each Industrial User. The list shall indicate which Industrial Users are subject to local standards that are more stringent than the categorical Pretreatment Standards. The Permittee shall also list the Industrial Users that are subject only to local Requirements;
(b) A summary of the status of Industrial User compliance over the reporting period;
(c) A summary of compliance and enforcement activities (including inspections) conducted by the Permittee during the reporting period; and
(d) Any other relevant information requested by the Department.

12. As required in 40 CFR 122.21 (j)(4) the permittee shall, as part of its renewal application for this permit, submit to the department a written technical evaluation of the need to revise local limits under 40 CFR 403.5 (c)(1).

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless otherwise specified by MDNR, procedures should be consistent with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA/600/4-90/027.

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at $p \leq 0.05$)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at $p \leq 0.05$)
Test Acceptability criterion:	90% or greater survival in controls

Missouri Department of Natural Resource
Water Pollution Control Program
Planning Section

Water Quality Review Sheet

Determination of Effluent Limits

Facility Information

FACILITY NAME: Monett WWTP NPDES #: MO-0021440

FACILITY TYPE/DESCRIPTION: Rotating Biological Contractors, Anaerobic Digestion

ECOREGION: Ozark Highlands 8- DIGIT HUC: 11070207 COUNTY: Barry

Central Irregular Plains Osage Plains
Mississippi Alluvial Plains Ozark Highlands

LEGAL DESCRIPTION: SE,SE,Sec.36,T26N, R28W LATITUDE/LONGITUDE : 36.9177 / -93.9405

WATER QUALITY HISTORY: History of non-compliance with 30/30 limits. Recent report and sample gathering violations. NOV for TSS. Polluted conditions below WWTP.

Outfall Characteristics

OUTFALL	DESIGN FLOW (CFS)	TREATMENT TYPE	RECEIVING WATERBODY	OTHER
001	9.3	Rotating Biodiscs	Clear Creek	
002	variable	Stormwater Detention Basin	Clear Creek	

Receiving Waterbody Information

WATERBODY	CLASS	7Q10(CFS)	*DESIGNATED USES	OTHER CHARACTERISTICS
Clear Creek	C	0.0	LWW, AQL	Losing Stream

*Cool Water Fishery (CLF), Cold Water Fishery (CDF), Irrigation (IRR), Industrial (IND), Boating & Canoeing (BTG), Drinking Water Supply (DWS), Whole Body Contact Recreation (WBC), Protection of Warmwater Aquatic Life and Human Health (AQL), Livestock & Wildlife Watering (LWW)

COMMENTS: The two tributaries that join to form Clear Creek are losing streams as well as all other tribs. between Monett and Pierce City. The Monett WWTP is listed as the cause of a 303(d) impairment (low dissolved oxygen). The TMDL for Clear Creek was completed in 1999 however continued monitoring indicate depressed dissolved oxygen and low biological integrity. Phase 2 of this TMDL is not scheduled at this time.

MIXING CONSIDERATIONS

Mixing Zone. According to 10 CSR 20-7.031, chronic water quality criteria must be attained at the edge of the mixing zone. Where natural 7Q10 flows are less than or equal to 0.1 cfs, mixing zone length is 0.25 miles.

Zone of Initial Dilution (Z.I.D.). Minimal dilution during drought periods. No zone of initial dilution is allowed where 7Q10 flows are less than 0.1 cfs. Acute criteria must be met end-of-pipe.

Permit Limits And Information

TMDL WATERSHED: (Y OR N) [Y] W.L.A. STUDY CONDUCTED: (Y OR N) [Y] DISINFECTION REQUIRED: (Y OR N) [Y] DISINFECTION WAIVER: (Y, N, NA) [N]

OUTFALL# 001. Rotating Biological Contractors

WET TEST (Y OR N): Y FREQUENCY: 1/YEAR A.E.C. 100% LIMIT: INSIGNIFICANT MORTALITY

PARAMETER	MAXIMUM DAILY LIMIT	AVERAGE MONTHLY LIMIT	MONITORING FREQUENCY	SAMPLE TYPE
Flow	*	*	Daily	24 HOUR TOTAL
BOD_5 (mg/l)	15	10	Daily	24-HOUR COMPOSITE
TSS (mg/l)	20	15	Daily	24-HOUR COMPOSITE
Fecal Coliform (col./100 ml)	1000	400	Weekly	GRAB
pH	6-9		Daily	GRAB
Temperature	*	*	Daily	GRAB
Ammonia-Nitrogen (mg/l)	SEE NOTE 1	SEE NOTE 1	Daily	24-HOUR COMPOSITE
Oil & Grease (mg/l)	15	10	Weekly	GRAB
Total Residual Chlorine (ug/l)	10	10	Weekly	GRAB
Cadmium (ug/l), Total Recoverable	18	18	Weekly	24-HOUR COMPOSITE
Chromium (ug/l), Total Recoverable	190	190	Weekly	24-HOUR COMPOSITE
Copper (ug/l), Total Recoverable	43	43	Weekly	24-HOUR COMPOSITE
Lead (ug/l), Total Recoverable	20	20	Weekly	24-HOUR COMPOSITE
Nickel (ug/l), Total Recoverable	600	600	Weekly	24-HOUR COMPOSITE
Zinc (mg/l), Total Recoverable	1.505	1.505	Weekly	24-HOUR COMPOSITE
Cyanide (ug/l), Amenable to Chlorination	5	5	Weekly	GRAB
Hardness (mg/l)	*	*	Weekly	GRAB
Dissolved Oxygen (mg/l)	*	*	Daily	GRAB
Total Phosphorus (mg/l)	*	*	Weekly	GRAB
Orthophosphate (mg/l)	*	*	Weekly	GRAB
Kjeldahl Nitrogen (mg/l)	*	*	Weekly	GRAB
$NO_2 + NO_3$ (mg/l)	*	*	Weekly	GRAB

OUTFALL# 002. Stormwater Basin

-Allowed to discharge during a 1 in 25 year rainfall event-

WET TEST (Y OR N): N FREQUENCY: N/A A.E.C. N/A LIMIT: N/A

PARAMETER	MAXIMUM DAILY LIMIT	AVERAGE MONTHLY LIMIT	MONITORING FREQUENCY	SAMPLE TYPE
Flow	*	*	1/Discharge	24 HOUR ESTIMATE
BOD_5 (mg/l)	45		1/Discharge	GRAB
TSS (mg/l)	45		1/Discharge	GRAB
Fecal Coliform (col./100 ml)	*	*	1/Discharge	GRAB
pH	6 - 9	*	1/Discharge	GRAB
Temperature	*	*	1/Discharge	GRAB
Ammonia-Nitrogen (mg/l)	*	*	1/Discharge	GRAB
Total Phosphorus (mg/l)	*	*	1/Discharge	GRAB
Orthophosphate (mg/l)	*	*	1/Discharge	GRAB
Kjeldahl Nitrogen (mg/l)	*	*	1/Discharge	GRAB
$NO_2 + NO_3$ (mg/l)	*	*	1/Discharge	GRAB

* Monitoring Only

Receiving Water Monitoring Requirements

Site US1. Upstream of Outfall 001 & 002

Parameter(s)	Sampling Frequency	Sample Type	Location
Flow	1/Month	Instantaneous	
BOD_5 (mg/l)	1/Month	Grab	
Dissolved Oxygen (mg/l)	1/Month	Grab	
TSS (mg/l)	1/Month	Grab	
pH	1/Month	Grab	
Temperature	1/Month	Grab	
Ammonia-Nitrogen (mg/l)	1/Month	Grab	
Total Phosphorus (mg/l)	1/Month	Grab	
Orthophosphate (mg/l)	1/Month	Grab	
Kjeldahl Nitrogen (mg/l)	1/Month	Grab	
NO_2 + NO_3 (mg/l)	1/Month	Grab	
Hardness (mg/l)	1/Month	Grab	
Cadmium (ug/l), Total Recoverable	1/Month	Grab	
Chromium (ug/l), Total Recoverable	1/Month	Grab	
Copper (ug/l), Total Recoverable	1/Month	Grab	
Lead (ug/l), Total Recoverable	1/Month	Grab	
Nickel (ug/l), Total Recoverable	1/Month	Grab	
Zinc (mg/l), Total Recoverable	1/Month	Grab	

Site DS1. Downstream of Outfall 001, edge of mixing zone (0.25 mi.)

Parameter(s)	Sampling Frequency	Sample Type	Location
Flow	1/Month	Instantaneous	
BOD_5 (mg/l)	1/Month	Grab	
Dissolved Oxygen (mg/l)	1/Month	Grab	
TSS (mg/l)	1/Month	Grab	
pH	1/Month	Grab	
Temperature	1/Month	Grab	
Ammonia-Nitrogen (mg/l)	1/Month	Grab	
Total Phosphorus (mg/l)	1/Month	Grab	
Orthophosphate (mg/l)	1/Month	Grab	
Kjeldahl Nitrogen (mg/l)	1/Month	Grab	
NO_2 + NO_3 (mg/l)	1/Month	Grab	
Hardness (mg/l)	1/Month	Grab	
Cadmium (ug/l), Total Recoverable	1/Month	Grab	
Chromium (ug/l), Total Recoverable	1/Month	Grab	
Copper (ug/l), Total Recoverable	1/Month	Grab	
Lead (ug/l), Total Recoverable	1/Month	Grab	
Nickel (ug/l), Total Recoverable	1/Month	Grab	
Zinc (mg/l), Total Recoverable	1/Month	Grab	Near Hwy 37 Bridge 36.9151 / -93.9297

Derivation and Discussion of Limits

❖ Note 1. Ammonia-Nitrogen Limits. As per TMDL calculations, limits are as follows in mg/l:

	Daily Max	Monthly Average
May 1 – September	2.8	2.8
December 1 – February 28	3.8	3.8
Other Periods	4.0	4.0

❖ All other limitations were carried over from the existing operating permit.

Reviewer: Chris Zell
Date: 1-17-2002
Unit Chief: Mohsen Dkhili